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I place on each side of the grindstone a flat ring of iron, or other metal, wrought or cast, about half an inch thick. To each ring I add a strong gripe, or bracing piece with screws, formed of a strong circular plate of iron, or other metal, corresponding in diameter with the rings before described. Each griping piece must have a hole in its center, of a proper size and figure to admit the spindle of the grind-stone. And also as near as convenient to and round the circular edges of each griper or bracing piece, I cause holes to be made at small distances, of a proper size and form to receive or admit screwed nuts or burs fitted and screwed to them so as to hold and admit of strong screw pins or bolts, which must be made to screw pointedly, or in a direct manner towards the before described rings and grind-stone. The bracing pieces may be made occasionally without the nuts, as their necessity depends upon those plates being made of cast iron. The gripes or bracing plates being made, I then place them upon the rings, one at each side of the grind-stone, the spindle of the said grindstone passing through them all, which are then to be secured completely tight and firm to their places by cotters through, or screws fixed to, the spindle of the grindstone, on the outside of the whole griping or bracing pieces on or against the rings or washers, so as to press, and hold the grind-stone between the apparatus on both its sides.

Patent of Mr. Benjamin Flight, of St. Martins Lane, Westminster, Organ Builder for a Metal Nave, Axle, and Box for Wheel carriages.

Dated Sept. 1809.

In this method of securing wheels to the axles, the axle is made hollow for a certain distance at each end, into which hollow part a large pin enters, having a projected head, which keeps the metal nave from being forced off: at its other end this pin has a groove turned on it, in which a cap is made to fit so as that the pin turns round freely with it, and which cap is divided longitudinally, that it may be put on or taken off when desired; when the cap and pin are in their places within the hollow axle, a bolt passing vertically through the hollow axle and cap keeps the pin from being drawn out, and thereby prevents the wheel from working off The pin itself is made hollow for the purpose of containing oil; which is put into it by an aperture at the center of its head, and secured from coming out by a screw that fits tight into this aperture; a small hole is drilled through the side of the pin into the oil box through which the oil passes between the pin and axle, the pin being fastened to the nave so as to turn round with it, and the oil being consequently required inside as well as outside the axle.

Observation...There does not seem to be any advantage in the pin being made to turn round with the nave, to counterbalance the disadvantage that must arise from the additional friction which this will occasion, and for the expense of the divided caps and their fitting which this mode of construction makes necessary. If the pin did not turn round, the bolt might pass through its end at once, which would be much simpler. Making the pin of size sufficient to contain an oil box would render it necessary to make the axle of a large size, in order to be sufficiently strong, but it is not certain that this would be so disadvantageous as it might appear, as the friction depends more on the weight of the carriage than on the extent of surface of the axle.

Mr Davy's Discoveries relative to Muriatic Acid.

Phil. Mag. 36, 152.

The conclusions drawn by Mr. Davy from the series of facts contained in the valuable paper which he read before the Royal Society (and of which an account was given in our last number) are highly deserving of attention, and are as follows:

1st. The oxymuriatic acid is, (as far as our knowledge extends) a *simple substance*, which may be classed in the same order of natural bodies as oxigen gas; being determined like oxigen to the positive surface in Voltaic combinations, and like oxigen,